REMARKS

Reconsideration of the above-identified application in view of the amendments above and the remarks following is respectfully requested.

Claims 26-45, 51 and 52 are in this case. Claim 26 is objected to; Claim 52 has been rejected under § 112; claims 26-45, and 51 have been rejected under § 103(a). Claim 26 has now been amended.

Claim Objections

The informalities in claim 26 that the Examiner has pointed out have now been corrected as per the Examiner's suggested changes.

§ 112, First Paragraph Rejections

The Examiner has rejected claim 52 under § 112, first paragraph. Specifically, the Examiner has stated that the specification does not reasonably provide enablement for selective deployment of the releasing agent by the selective removal of a coating of the releasing agent, as claimed in claim 52. The Applicant respectful directs the Examiner to the first full paragraph on page 13 of the application, which the Applicant feels fully provides ample description such that one of ordinary skill would be able to implement such a feature.

§ 103 Rejections

The Examiner has rejected claims 26-33, 35-45 and 51 under 35 U.S.C. 103(a). Claims 26-29, 33, 35 and 51 as being unpatentable over Feygin et al. (US 5,730,817) in various combinations with Kinzie (US 6,136,132), Shimazaki (US 5,474,229), Bampton et al. (US 5,745,834), Belanger, Jr. (US 4,721,543), Berman (US 5,071,503), and Richards et al. (US 6,161,604). The Examiner's rejections are respectfully traversed.

One problem addressed by the present invention is that of inhibiting bonding between portions of the desired three-dimensional object and unwanted residue, during the process of

bonding a new sheet to the top of the construction stack. The Examiner acknowledges that Feygin et al. (US 5,730,817) does not disclose the selective deployment of a releasing agent on one side of the sheet. The Examiner further asserts that one of ordinary skill in the art would be expected to turn to Kinzie (US 6,136,132), Shimazaki (US 5,474,229), Bampton et al. (US 5,745,834) and/or Belanger, Jr. (US 4,721,543) in combination with Feygin et al. (US 5,730,817) for such a solution.

The Applicant respectfully submits that Shimazaki (US 5,474,229) discloses a method in which no permanent bonding is desired between sheets and therefore the releasing agent is applied over the entirety of an area corresponding to the area of adhesive application on the opposing sheet. Therefore, Shimazaki (US 5,474,229) neither teaches nor suggests a method for selectively applying a releasing agent so as to permit bonding in some areas in which the two sheets come into contact, and not in others.

With regard to Bampton et al. (US 5,745,834), the disclosed use of a releasing agent is after fabrication in order to prevent unwanted accidental adhesion between the desired object and fabricated support elements during heating in a vacuum furnace, as stated in Column 6, lines 18-23,

> "...After fabrication and removal from apparatus 10, the green support shapes 28 may be sprayed with a fine coating of a release agent, such as alumina or yttria powder, for example, to prevent supporting shapes 28 from adhering to preform part 15 during the transient liquid sintering densification process." (emphasis added)

It is clear that Bampton et al. (US 5,745,834) neither teaches nor suggests the application of a releasing agent to any portion of a layer during the layer bonding procedure, nor would there be any utility in such a bond inhibiting process in the method of Bampton et al. (US 5,745,834).

As for Belanger, Jr. (US 4,721,543),

> "...A release agent dispenser may be included in the apparatus to apply release agent either prior to or subsequent to forming of the mold and will serve

to facilitate removal of the solidified premold later..." (col. 2, lines 15-18; emphasis added).

Belanger, Jr. (US 4,721,543) is clearly teaching a method in which no permanent bonding is desired between the two elements and therefore the releasing agent is applied over the entirety of an area.

The Applicant respectfully submits that the context in which the use of a releasing agent is taught in these three cited references is so removed from the problem solved by the present invention that one familiar with Feygin et al. (US 5,730,817) would not be expected to turn to any of them, either alone or in combination with others, for a solution to the issue of joining two layers, specific portions of which are permanently bonded together while other portions are not bonded at all.

Turning now to Kinzie (US 6,136,132), the methods of Kinzie and Feygin et al. (US 5,730,817) are vastly different. Kinzie starts with a solid block of material that is larger than the model being constructed. During construction, the block is cut in two and the now exposed surface area is manipulated as per the requirements of construction, and the two pieces of the block are reattached. As a result, layers of variable thickness are created in the block. In all cases, the layers of Kinzie will necessarily be very much thicker than the flexible sheets of Feygin et al., and a very much smaller number of layers is required. The bonding of Kinzie is thus that of reattaching two rigid portions of a block. Feygin et al. (US 5,730,817), on the other hand, teaches attachment of a portion of a single thin sheet to the top of a stack. Although the stack may be analogous to one portion of the Kinzie block, the sheet being added to the stack, and hence the entire bonding process, is not. As a result, the design consideration in selecting adhesion techniques are very different. This is further exemplified by the mention of "*pins, bolts or screws*" as possible bonding techniques (col. 12 lines 15-16), or "*interlocking features*" of the layers (ibid., lines 16-17), techniques which are clearly

completely unsuited to the hundreds of layers of thin flexible sheets of Feygin et al. Due to these clearly differing design considerations, and in the absence of any hint or suggestion that the teachings of these documents should be combined, the Applicant respectfully submits that one ordinarily skilled in the art would not look to Kinzie for alternative adhesion techniques for use in Feygin et al.

Furthermore, even if he were to consider the teachings of Kinzie regarding adhesion techniques, one ordinarily skilled in the art would expect the two-component "bond inhibitor" and "volatile solvent" combination to be unsuitable for use in the thin-sheet attachment system of Feygin et al. Specifically, use of volatile solvent typically leads to a slight reduction in overall thickness of the two attached layers, whereas the regions treated with a bond inhibitor would exhibit slightly increased thickness. In Kinzie, since each new slice is made after block reattachment, any unevenness created in adhesion of the previous interface is eliminated by the next cut. In contrast, in the technique of Feygin et al., any unevenness in the adhesion will be compounded by successive layers, resulting in significant overall distortion of the model. For this reason, one ordinarily skilled in the art would reject the teachings of Kinzie as inoperative, or at least highly inferior, for application to the system of Feygin et al., and would therefore lack motivation to implement the combination proposed by the Examiner.

The Applicant believes that the above comments completely overcome the Examiner's rejections of claims 26, and hence claims 27-45, 51 and 52 which depend therefrom, on § 103 grounds.

In view of the above amendments and remarks it is respectfully submitted that amended independent claim 26 and hence dependent claims 27-45, 51 and 52, are in condition for allowance. Prompt notice of allowance is respectfully and earnestly solicited.

Please find attached hereto a version of the amended portions of the application marked up to identify the changes made.

Respectfully submitted,

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Version Of Amendments Marked-Up To Show Changes Made:

In the Claims:

26. (Amended) A method of making a three-dimensional object constituted of a large number of thin preformed sheets each bonded on ~~its opposite~~one sides to the next adjacent sheets on its opposite sides, with each sheet cut along a contour corresponding to the contour of the respective layer constituted by the sheet in the object, the method comprising selectively applying to one side of each sheet a releasing agent effective to inhibit bonding between adjacent sheets, the releasing agent being applied selectively in a manner such that, after the sheet has been bonded to the next adjacent sheet on that side, the surface of the sheet within the respective contour is bonded to the next adjacent sheet, while the remaining portion of the respective sheet not within said contour is readily separable from the three-dimensional object.